

MAR 21 2007

Application No.: 10/719,564

Docket No.: NGW-013

REMARKS

Applicants amend claims 1 and 2. Support for the claim amendment can be found at Page 3, lines 20-24 and Page 4, lines 18-24. No new matter is added. Upon entry of this amendment, claims 1-10 are pending, of which claims 1 and 2 are independent. Applicants respectfully submit that the pending claims define over the art of record.

The Claimed Invention

Independent claims 1 and 2 recite a first cooling flow passage for cooling the fuel cell using a first cooling medium cooled by a main radiator, and a second cooling flow passage for cooling at least one of the drive motor and a power control unit of the drive motor using a second cooling medium cooled by an auxiliary radiator, wherein the second cooling flow passage is thermally independent from the first cooling flow passage. The operating temperature for the fuel cell and the motor are different, and thus, the use of thermally independent cooling flow passages to cool the fuel cell and motor can prevent complicated valve controls as shown in the prior art, such as United States Patent No. 6,595,433 by Ap et al.

Claim Rejections Under 35 U.S.C. §102

Claims 1 and 7 are rejected under §102(e) as being anticipated by United States Patent No. 6,595,433 to Ap et al. (hereafter "Ap'433"). Applicants respectfully submit that the Ap'433 reference does not disclose the limitation that the second cooling flow passage is thermally independent from the first cooling flow passage, as recited in amended claim 1.

The Ap'433 Reference

The Ap'433 reference discloses a main loop 18 with a main radiator 26 for cooling the fuel cell 12 and a secondary loop 20 with a secondary radiator 54 for cooling at least the motor. See Figs. 1-4 and Col. 3, lines 7-15 and 39-42. The main loop 18 and the secondary loop 20 shares a common portion 22 on which a common pump 24 is mounted so that the refrigerant fluid may be shared between the loops. See Figs. 1-4 and Col. 3, lines 7-10. In contrast, amend claim 1 requires that the second cooling flow passage is thermally independent from the first cooling flow passage.

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Accordingly, Applicants respectfully submit that the AP'433 reference does not disclose the limitation that the second cooling flow passage is thermally independent from the first cooling flow passage, as recited in amended claim 1. Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 1.

Applicants note that dependent claim 7 also recites patentable subject matter. As such, for this and the reasons set forth above, claim 7 also defines over the art of record.

Claim Rejections Under 35 U.S.C. §103

Claims 3, 5, and 9

Claims 3, 5, and 9 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Ap'433 reference in view of United States Patent No. 3,929,202 to Hobbensiefken (hereafter "Hobbensiefken"). Applicants respectfully submit that the combination of the Ap'433 reference and the Hobbensiefken reference do not teach or suggest the limitation that the second cooling flow passage is thermally independent from the first cooling flow passage, as recited in amended claim 1, which claims 3, 5, and 9 depend.

The Ap'433 Reference

As set forth above, the Ap'433 reference does not teach or suggest the limitation that the second cooling flow passage is thermally independent from the first cooling flow passage, as required by claims 3, 5, and 9.

The Hobbensiefken Reference

The Hobbensiefken reference teaches that radiators 19 and 21 are disposed laterally outwardly of side walls 25 and 26 and rearwardly of rear wall 27 of the cab. In contrast, claims 3 and 5 require the heat exchange surface of the radiators to face obliquely forwardly and outwardly. In addition, the Hobbensiefken reference does not teach or suggest that the second cooling flow passage is thermally independent from the first cooling flow passage, as required by claims 3, 5, and 9.

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Accordingly, the combination of the Ap'433 reference and the Hobbensiefken reference do not teach or suggest each and every element and limitation of claims 3, 5, and 9. Applicants respectfully request that the Examiner reconsider and withdraw the rejections of claim 3, 5, and 9.

Claims 2, 4, 6, 8, and 10

Claims 2, 4, 6, 8, and 10 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Ap'433 reference in view of United States Patent No. 6,448,535 to Ap (hereafter "Ap'535") and further in view of the Hobbensiefken reference and United States Patent No. 4,632,206 to Morinaka et al. (hereafter "Morinaka").

Applicants respectfully submit that the combination of the Ap'433 reference, the Ap'535 reference, the Hobbensiefken reference, and the Morinaka reference do not teach or suggest that the main radiator is disposed between a pair of right and left main frames and the auxiliary radiator is situated outside the main frames, as recited in claim 2. The combination of the prior art references also do not teach or suggest that the second cooling flow passage is thermally independent from the first cooling flow passage, as recited in amended claim 2.

The Ap'433 Reference

As set forth above, the Ap'433 reference does not teach or suggest that the second cooling flow passage is thermally independent from the first cooling flow passage. The Ap'433 reference merely teaches two loops sharing a common section to share cooling medium are used to cool the various components in a vehicle, but the Ap'433 reference does not teach or suggest where the radiators are disposed, between the main frames or outside of the mainframes. Hence, the Ap'433 reference does not teach or suggest that the main radiator is disposed between a pair of right and left main frames and the auxiliary radiator is situated outside the main frames, as recited in claim 2.

The Ap'535 Reference

The Ap'535 reference teaches a heat exchanger 34 that is disposed between two loops to allow heat exchange between the two loops, where one of the loops have a main radiator and an auxiliary radiator, and the other loop does not have a radiator. In contrast, claim 2 requires that

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the second cooling flow passage is thermally independent from the first cooling flow passage. Claim 2 also requires that the main radiator cooled by the first cooling flow passage is disposed between the main frames and that the auxiliary radiator cooled by the second cooling flow passage is disposed outside the main frames to prevent heat exchange between the radiators.

The Hobbensiefken Reference

The Hobbensiefken merely teaches that radiators 19 and 21 in a truck are disposed laterally outwardly of side walls 25 and 26 and rearwardly of rear wall 27 of the cab. Hence, there is no teaching or suggestion in the Hobbensiefken reference that one of the radiators is disposed between the main frames while the other is disposed outside of the main frames, as required by claim 2. In addition, as set forth above, the Hobbensiefken reference does not teach or suggest that the second cooling flow passage is thermally independent from the first cooling flow passage, as recited in amended claim 2.

The Morinaka Reference

The Morinaka reference teaches that radiator 38 and 40 in a motorcycle are disposed at an oblique angle with a duct 46 between the radiators, but fails to teach or suggest that one of the radiators is disposed between the main frames while the other is disposed outside of the main frames, as required by claim 2. In addition, the Morinaka reference also does not teach or suggestion that the second cooling flow passage is thermally independent from the first cooling flow passage, as recited in amended claim 2.

Accordingly, the combination of the Ap'433 reference, the Ap'535 reference, the Hobbensiefken reference, and the Morinaka reference do not teach or suggest each and every element and limitation of independent claim 2. Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 2.

Applicants note that the dependent claims also recite patentable subject matter. As such, for this and the reasons set forth above, Applicants respectfully submit that the dependent claims also define over the art of record.

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CONCLUSION

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Applicants believe no fee is due with this statement. However, if a fee is due, please charge our Deposit Account No. 12-0080, under Order No. NGW-013 from which the undersigned is authorized to draw.

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Respectfully submitted,

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